CLAIMS

1.   An inkdrop printer having a multi-segment printhead comprising:

two or more print engine/controllers, each configurable to be coupled with others to drive the multi-segment printhead;

a memory buffer for receiving compressed page data;

image decoders to perform an expansion, in pipeline fashion, of the compressed page data;

a half-toner/compositer to composite respective strips of the decoded image planes; and

a printhead interface to output the composite strip to the printhead

the printhead interface including:

a multi-segment printhead interface outputting printhead formatted data; and

a synchronization signal generator outputting a synchronization signal to couple the print engine/controllers to synchronize their respective strips at the printhead.

2.   The printer of claim 1 wherein:

the printhead interface is adapted to receive an input signal which determines if the print engine controller is a master controller or a slave.

3.   The printer of claim 1 wherein:

the pipeline fashion expansion further comprises the expansion, in parallel, of a JPEG-compressed contone CMYK layer and at least one other layer.

4.   The printer of claim 3 wherein:

the other layer is a Group 4 Fax-compressed bi-level black layer.

5.   The printer of claim 4 wherein:

the pipeline fashion expansion further comprises the expansion, in parallel with the layers, of a Group 4 Fax-compressed bi-level dither matrix selection map.

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6.   The printer of claim 1, wherein:

the half-toner/compositer further comprises a tag encoder for encoding bi-level infra-red tag data from the compressed page data.

7.   The printer of claim 3 wherein:

the pipeline fashion expansion further comprises a second stage dithering of the contone CMYK layer using a dither matrix selected by the dither matrix select map.

8.   The printer of claim 7 wherein:

the second stage further comprises a compositing of the bi-level black layer over a resulting bi-level K layer.

9.   The printer of claim 8 further comprising:

the second stage further comprises the generation of an infra-red layer.

10.   The printer of claim 8 further comprising:

the second stage further comprises the generation of a fixative layer.

11.   The printer of claim 10 wherein:

the fixative layer is generated at each dot position according to the need in a C, M, Y, K or IR channel.

12.   The printer of claim 1 wherein:

the pipeline fashion expansion is performed using a high speed serial interface, a standard JPEG decoder 28, a standard Group 4 Fax decoder, a half-toner/compositor unit, a tag encoder, a line loader/formatter unit.

12.   The printer of claim 11 wherein:

the decoders and encoder are buffered to the half-toner/compositor.

13.   The printer of claim 12 wherein:

the high speed serial interface is an IEEE 1394 interface.

14.   The printer of claim 1 wherein;

the half-toner/compositor scales input image planes under control of a margin unit set to establish print data for a strip of the image.

5   15. The print engine/controller of claim 1, wherein:

the half-toner/compositer has as an input, an expanded contone layer, an expanded bi-level spot1 layer, an expanded dither-matrix-select bitmap and tag data.

16.   The print engine/controller of claim 15, wherein:

10   the half-toner/compositor includes a margin unit to apply margin data to the respective image planes during the composite process to generate print data in strips.

17.   The print engine/controller of claim 15, wherein:

15   the halftoner/compositor scales input image planes under control of a margin unit set to establish print data for a strip of the image.

18. The print engine/controller of claim 17, wherein:

the half-toner/compositor further comprises a number of scale units, each

20   scale unit receiving data from a buffer layer and at least one scale unit receiving two control bits, the control bits being an advance dot bit and an advance line bit.